

REMARKS

Claims 1 to 17 are all the claims pending in the application, prior to the present amendment.

Claims 1 to 9 and 17 have been rejected under the second paragraph of 35 U.S.C. §112 as indefinite.

The Examiner sets forth a number reasons for the rejection. Applicants discuss these reasons below.

The Examiner states that there is insufficient antecedents basis for “the carrier” in claim

1. Applicants have amended claim 1 to change “the” to --a--, thereby overcoming the rejection.

The Examiner states that claims 1 to 5, 7 to 9 and 17 each contain improper Markush language. In addition, the Examiner states that the term “and/or their salts” in claim 2, and the term “and/or their salt” in claims 6 to 8 is improper with respect to the term “and/or.” Applicants have amended the claims to employ conventional Markush language, and to remove the term “and/or” from the phrases which have been referred to by the Examiner.

In view of the above, applicants request withdrawal of this rejection.

Claims 1-12 and 17 have been rejected under 35 USC 103(a) as obvious over U.S. 2003/0092936 to Sano.

Applicants submit that Sano does not disclose or render obvious the subject matter of the present claims and, accordingly, request withdrawal of this rejection.

The present invention as set forth in claim 1 is directed to a process for production of a supported catalyst comprising the following steps in order:

(1) First step: a step of impregnating a carrier with a solution containing (a) at least one compound which comprises at least one element selected from Group 8, 9 and 10 elements of the Periodic Table (hereinafter referred to as “(a) group compound),” to obtain an impregnated carrier (A);

(2) Second step: a step of contacting the impregnated carrier (A) with an alkaline substance and (b) a compound containing at least one element selected from among gallium, indium, thallium, germanium, tin, lead, phosphorus, arsenic, antimony, bismuth, sulfur, selenium, tellurium and polonium (hereinafter referred to as “(b) group compound)” to obtain an impregnated carrier (B) (where the alkaline substance and the (b) group compound are contacted simultaneously or separately in order with the impregnated carrier (A));

(3) Third step: a step of contacting the impregnated carrier (B) with a reducing substance to obtain a supported catalyst (C).

The catalyst of the present invention is employed in a reaction in which acetic acid is prepared from ethylene and oxygen, while the catalyst in Sano is employed in a reaction in which acetic acid and ethyl acetate are prepared from ethanol and oxygen. In this regard, it should be noted that Sano describes that the catalyst is for the production of acetic acid, e.g., in claim 1, but a mixture of acetic acid and ethyl acetate is, in fact, produced as is seen from the Examples of Sano. Further, various claims, such as claims 28 to 36 of Sano, are also directed to a catalyst for the production of acetic acid and ethyl acetate.

Even if the combination of the supported ingredients (or elements) in a catalyst is the same as that in another catalyst, it cannot be predicted whether the former catalyst is useful for a reaction in which the latter catalyst is useful. Sano neither teaches nor suggests that the Sano

catalyst can be applied to a reaction for the production of acetic acid from ethylene and oxygen.

That is, Sano provides no motivation for the present invention.

Further, Sano is different from the present invention in the supporting process for the catalyst production. The Examiner states in the Office Action, at page 3, last two lines, as follows:

Carrier is further contacted with a group 14, 15 or 16 element (e.g. tellurium chloride) dissolved an alkaline substance water. See [0072-0073] and [0121].

However, paragraphs [0072], [0073] and [0121] that are referred to by the Examiner do not contain any reference to “an alkaline substance water.” Paragraph [0073] of Sano states as follows:

...the starting material for the group (b) element may be dissolved or suspended in an appropriate solvent such as water or acetone, or in an inorganic acid or organic acid such as hydrochloric acid...

Further, paragraph [0072] of Sano merely describes examples of the starting material for the group (b) element, and does not contain any reference to “an alkaline substance water.”

Paragraphs [0072] and [0073] of Sano are part of a description of step 2 of production process (1) for a catalyst according to invention I of Sano.

Paragraph [0121] of Sano is part of a description of Step 1 of production process (7) for a catalyst according to invention III of Sano. There is no mention of an “alkaline substance water” in paragraph [0121] of Sano.

Thus, Sano teaches water, acetone and acids only as a solvent for the starting material for the group (b) elements in step 2 of production process (1) according to invention I of Sano and, contrary to the Examiner’s statement, neither teaches nor suggests “an alkaline substance water.”

An alkaline treatment with an aqueous solution of an alkaline substance, such as sodium metasilicate, is carried out in Sano to obtain an insoluble palladium oxide or hydroxide as in the present invention, but this treatment is described in other passages, such as paragraph [0067], of Sano which do not teach or suggest a combination with the description in paragraph [0073].

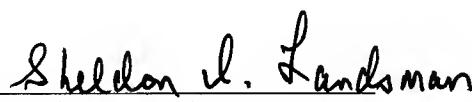
Thus, the present invention is clearly distinguished from Sano.

In view of the above, applicants submit that Sano does not disclose or render obvious the subject matter of claims 1-12 and 17 and, accordingly, request withdrawal of this rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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